

EYES ONLY

DD/A Registry

76-3506

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File Medical

23 JUL 1976

MEMORANDUM FOR: Deputy Director for Intelligence
Deputy Director for Operations
Deputy Director for Science & Technology
Director of Medical Services
Director of Communications
Director of Logistics
Director of Data Processing
Director of Security
Director of Training

FROM : John F. Blake
Deputy Director for Administration

SUBJECT : Electronic Emissions Hazards

1. The hazards created by emissions from radio frequency (RF) and microwave equipment have received a great deal of interest and publicity over the past year. The Office of Technical Service (OTS), DDS&T has submitted a proposal to determine if any of the equipment used by the Agency is creating a health hazard. Several meetings were held within the DDA and DDS&T regarding this proposal, and it has been decided that microwave emissions hazards only will be addressed at this time. Thus, the frequency spectrum to be studied is 30 MHz to 300 GHz.

2. Microwave radiation does not produce photochemical reactions. However, microwave energy is absorbed by biological systems and ultimately dissipates into tissue as heat and can cause cataracts of the eye, damage to internal organs, or upset the central nervous system. The present standard (threshold limit) or power density of 10 milliwatts per square centimeter (mW/cm²) was established as a result of the Tri-Services Conference in 1953. It was the consensus of the conferees that 100 mW/cm² was required to produce whole body heating. Since it was thought that non-ionizing radiation could produce detrimental health effects only through the elevation of tissue temperature, the safety standard

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was based on this finding. As a safety consideration, this was reduced by a factor of 10, thus establishing as a standard 10 mW/cm². This standard was adopted by the Occupational Safety and Health Act of 1970.

3. Bio-medical effects of microwave radiation vary with the power and frequency of the radiation and the duration of exposure. The Soviets have reported physiological effects at levels as low as 1 microwatt/cm² and below. However, most United States scientists would agree that, in most cases, detrimental health effects do not occur at levels below 1 mW/cm².

4. Initially, our plan is to establish an OTS and Safety Branch task force which will deal with representatives whom you designate for the purpose of conducting an inventory of your microwave equipment and determining whether such equipment meets current safety standards.

5. In order that this problem may be addressed on a timely basis, it is requested that each addressee select a representative to participate in the task force to study the problem. The names of your representatives should be submitted to [REDACTED] of the Safety Branch, Office of Security, extension 3611, by 28 July 1976.

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/s/ John F. Blake

John F. Blake

Distribution:

- 1 - Each addressee
- 2 - DDA

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SUBJECT: Electronic Emissions Hazards

ORIGINATOR:

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Robert W. Gambino
Director of Security

13 July 76
Date

2 - It was the consensus of the conferees that 100 mW/cm^2 was required to produce whole body heating. Since it was thought that non-ionizing radiation could produce detrimental health effects only through the elevation of tissue temperature, the safety standard was based on this finding. as

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